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E05D 15/46

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(58) Field of search
UK CL (Edition K) E2F FSG
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# (54) Window stay-hinge

(57) A stay-hinge (10) comprises a first member (11) for attaching to the frame of a window, a second member (12) for attaching to the sash and first and second elements (13, 14) pivotally mounted at their ends to the first and second members (11, 12). Preferably, the second element (14) is pivotally attached to the first member by means of a pin (27) engaging in an elongated aperture (26) for enabling pivotable and slidable movement when an apec (23a) on the element engages a step (16) on the member during displacement of the device. A second stop (15) at the other end of the member (11) cooperates with the (12). The member (12) may be of L-section as shown or both members may be flat and received in recesses in the frame and sash. The stops (15, 16) may be bent-over ends of the member (11).

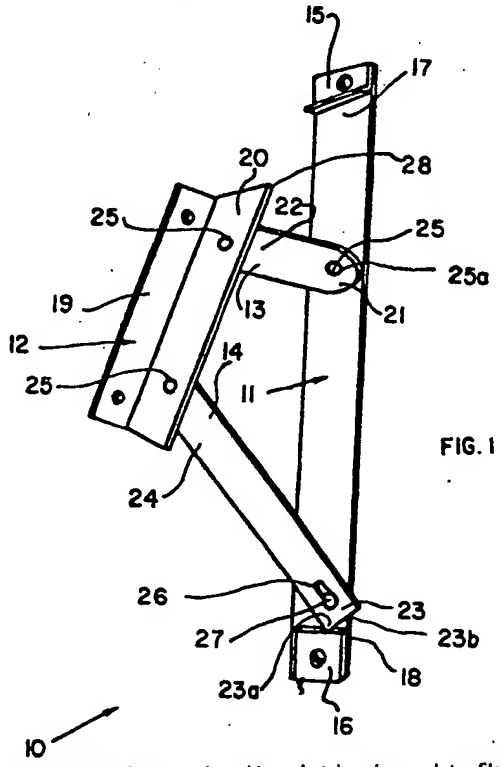


FIG. 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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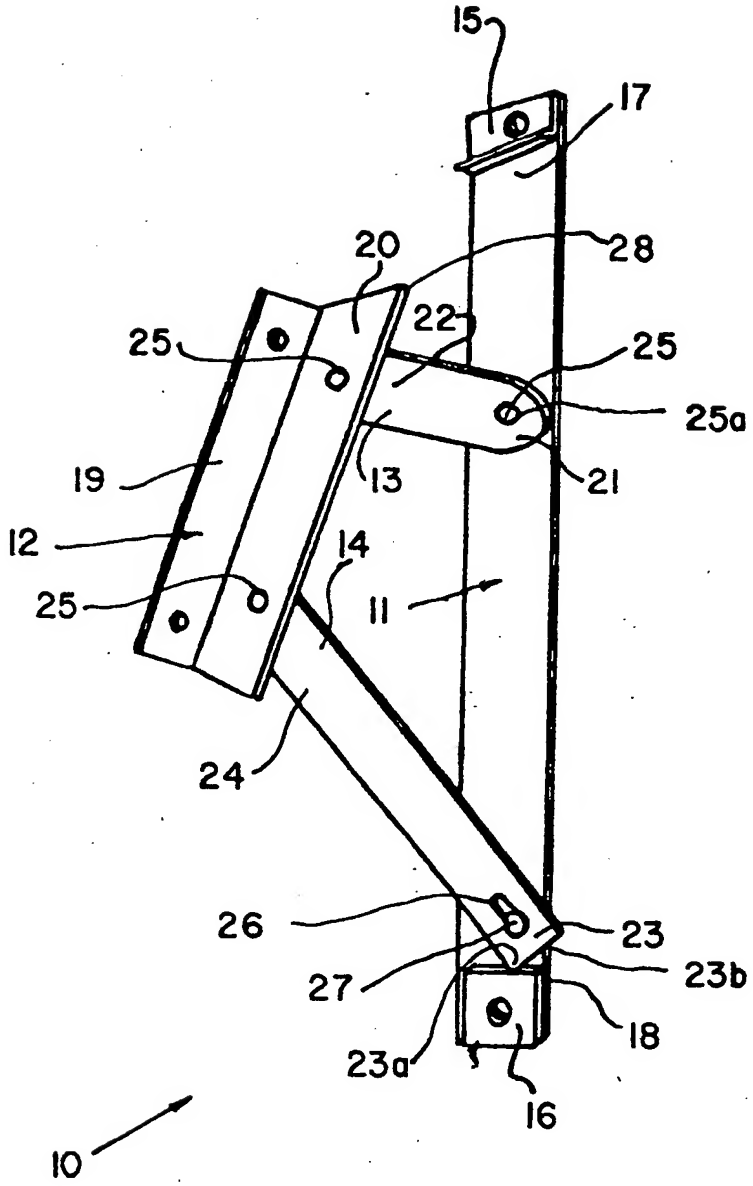
15
17
20
28
22
25
25
25a
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11
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26
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27
23b
18
23a
16
10

FIG. 1

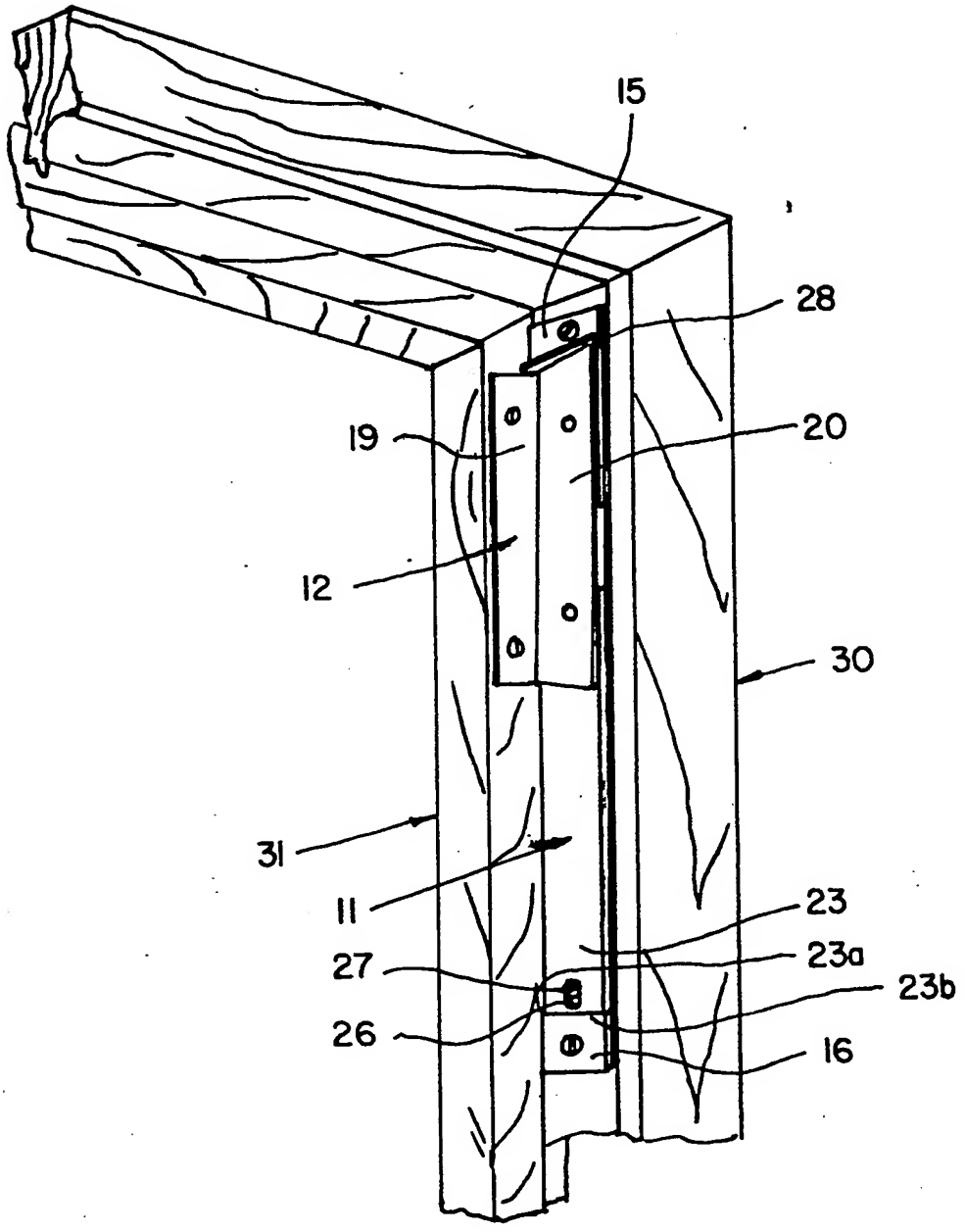


FIG. 2

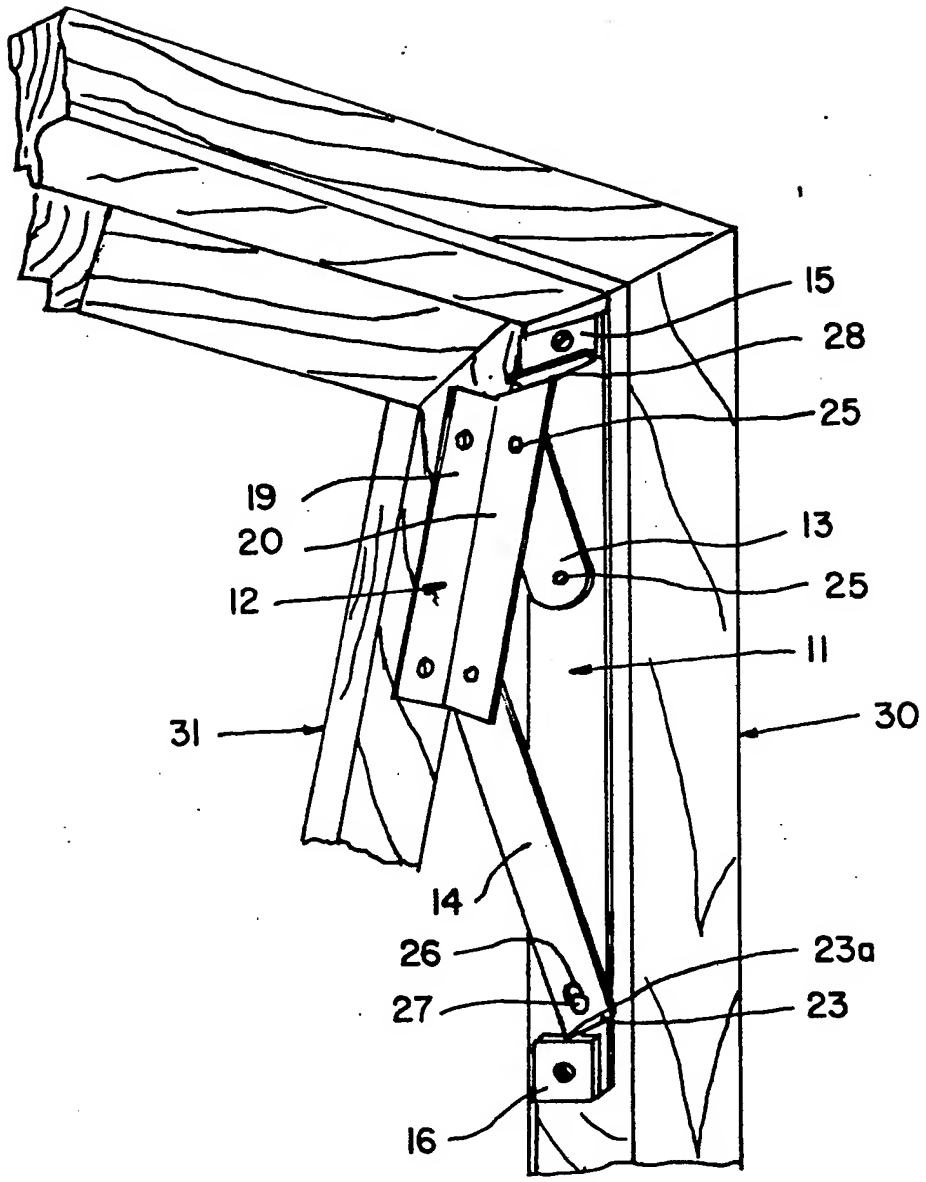


FIG. 3

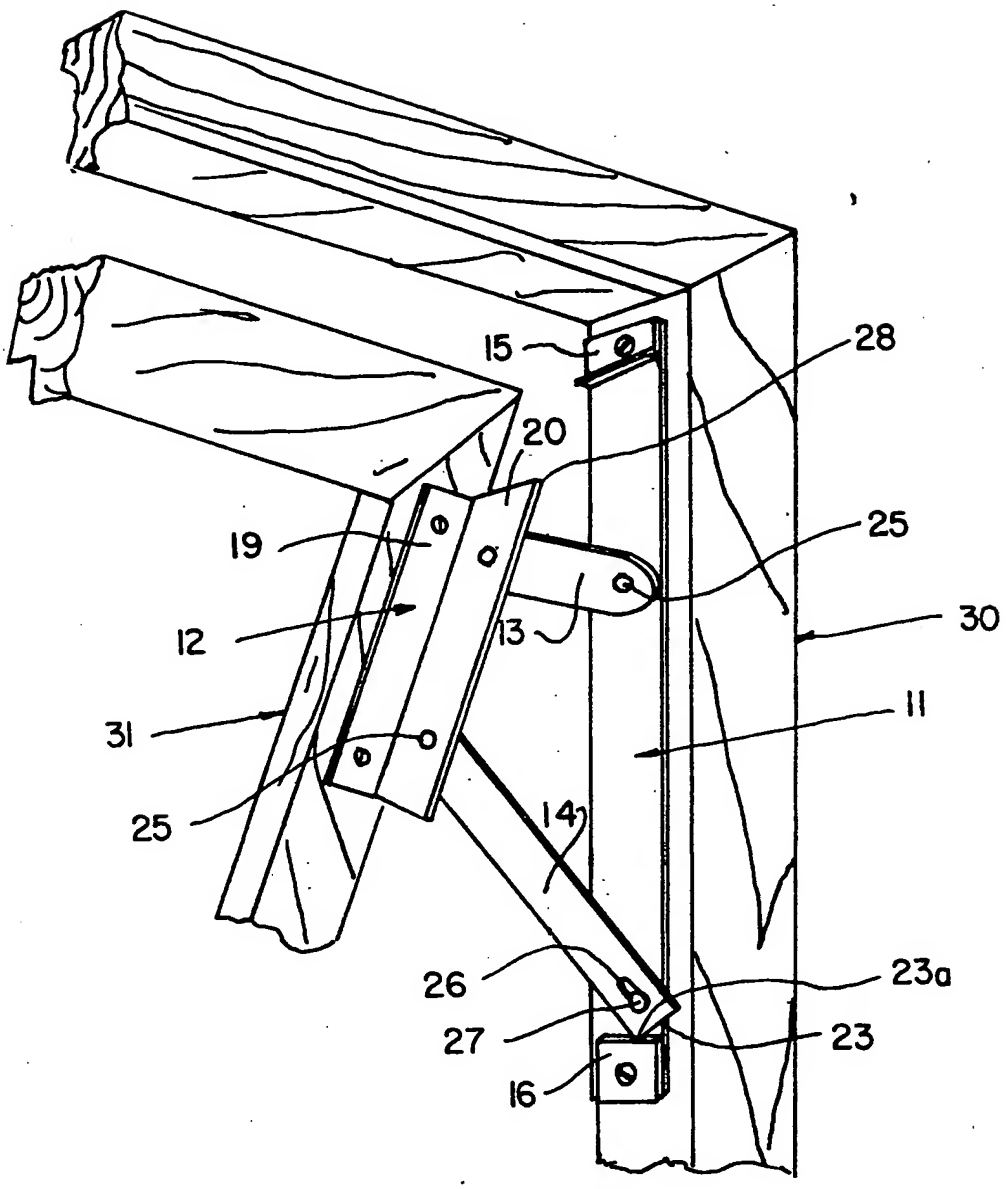


FIG. 4

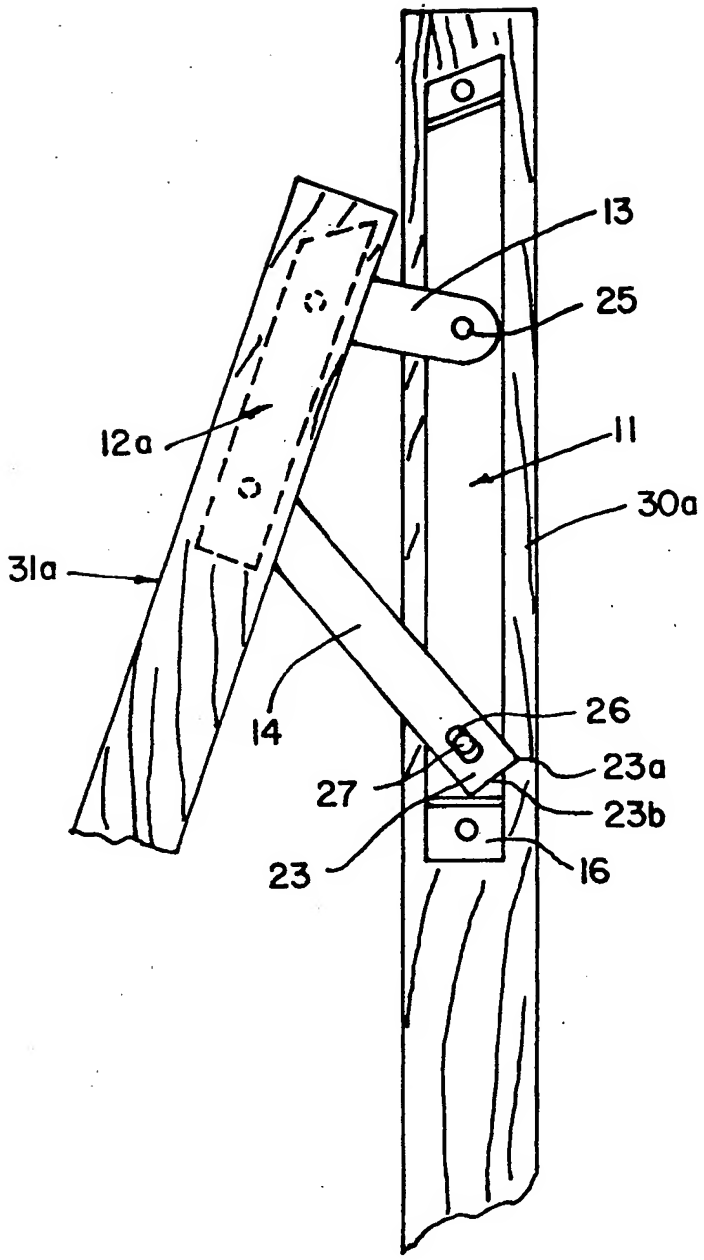


FIG. 5

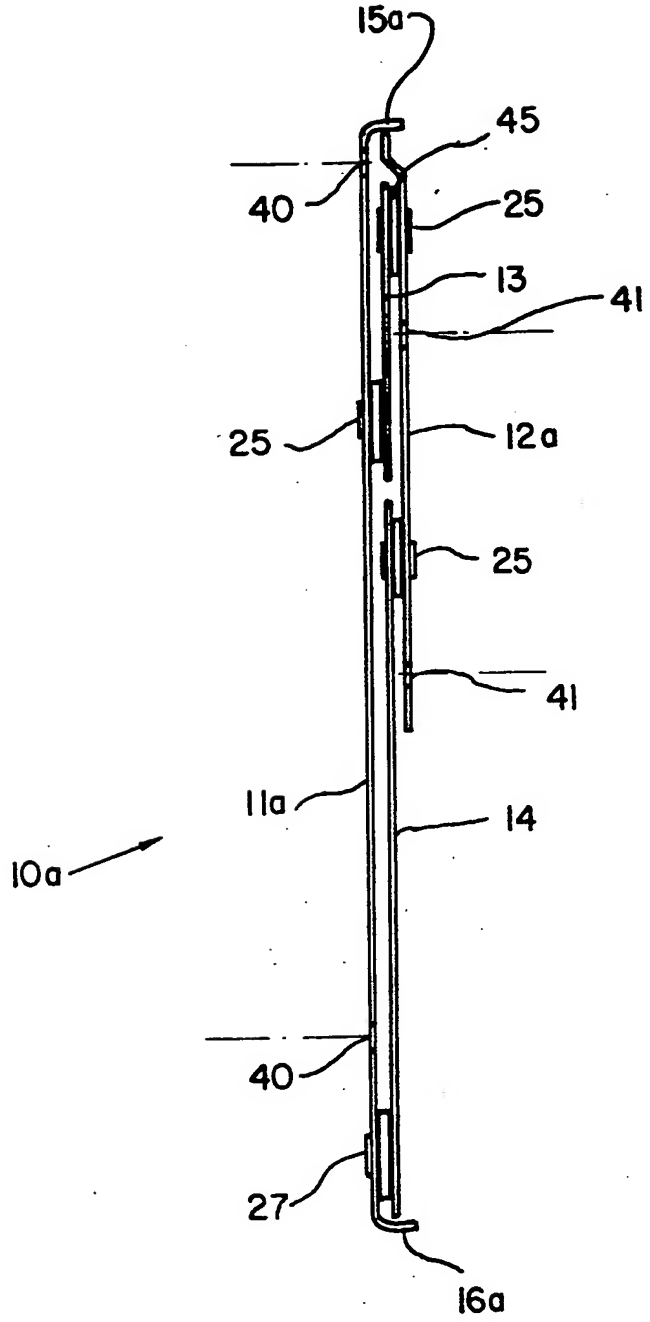


FIG.6

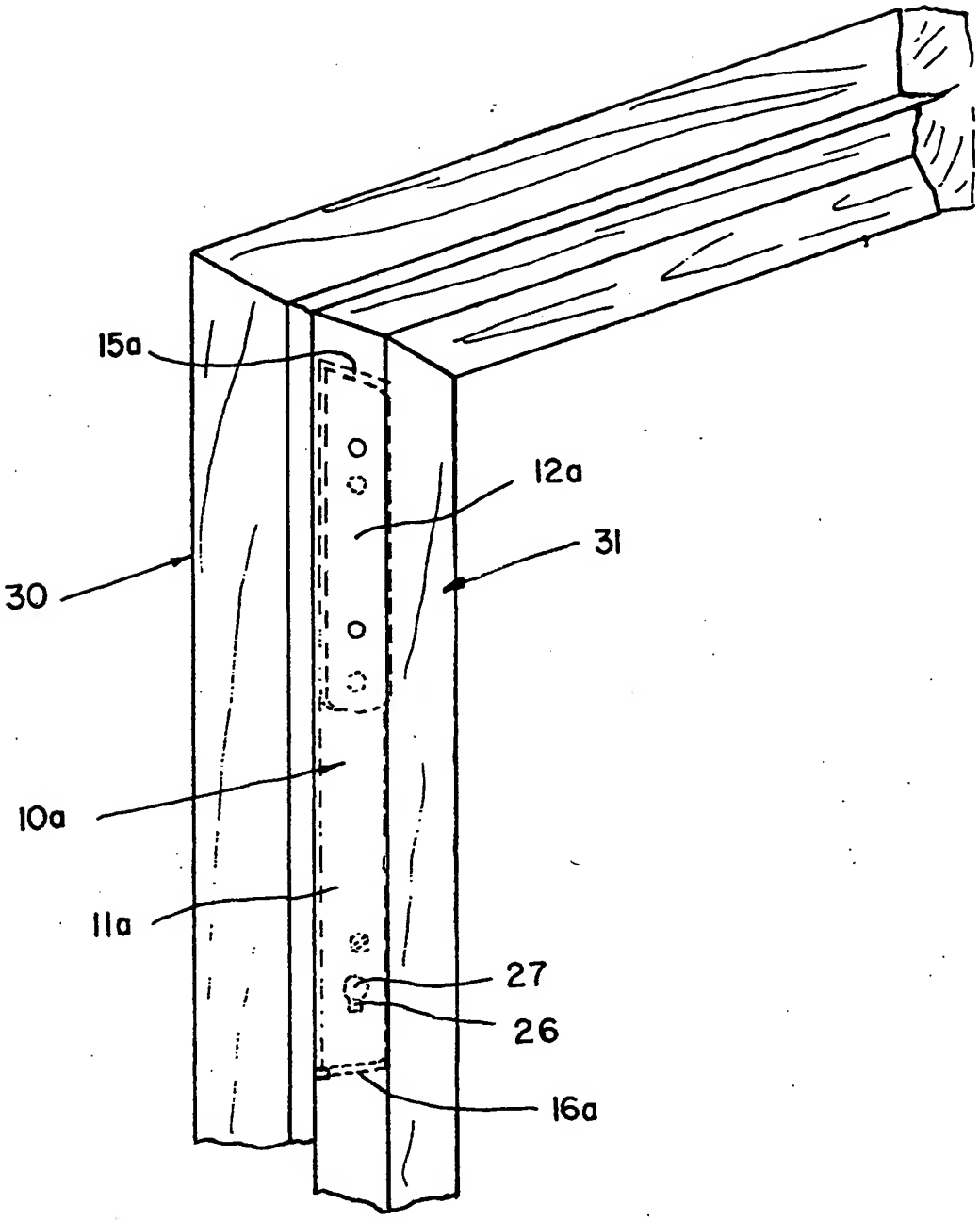


FIG. 7

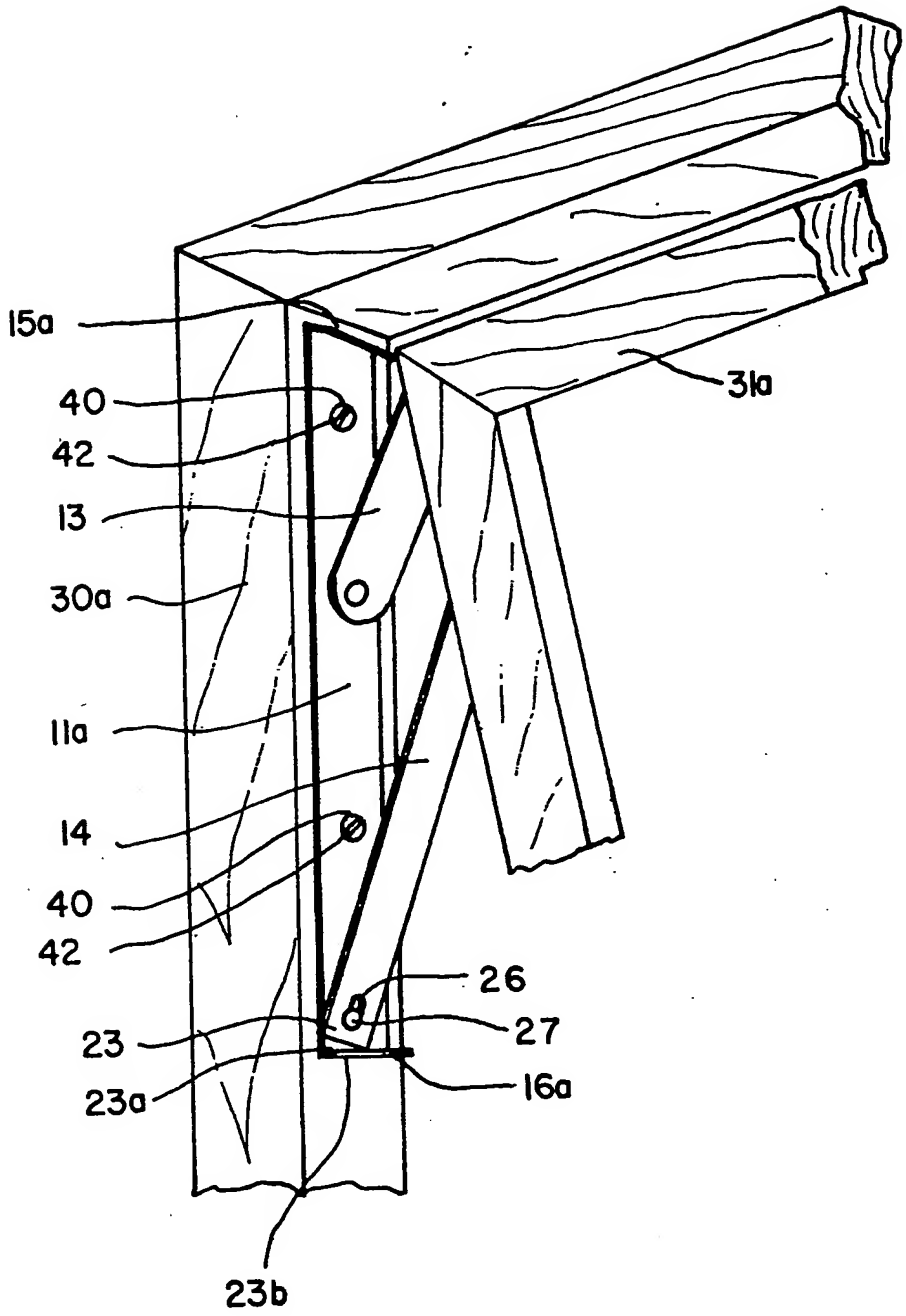


FIG.8

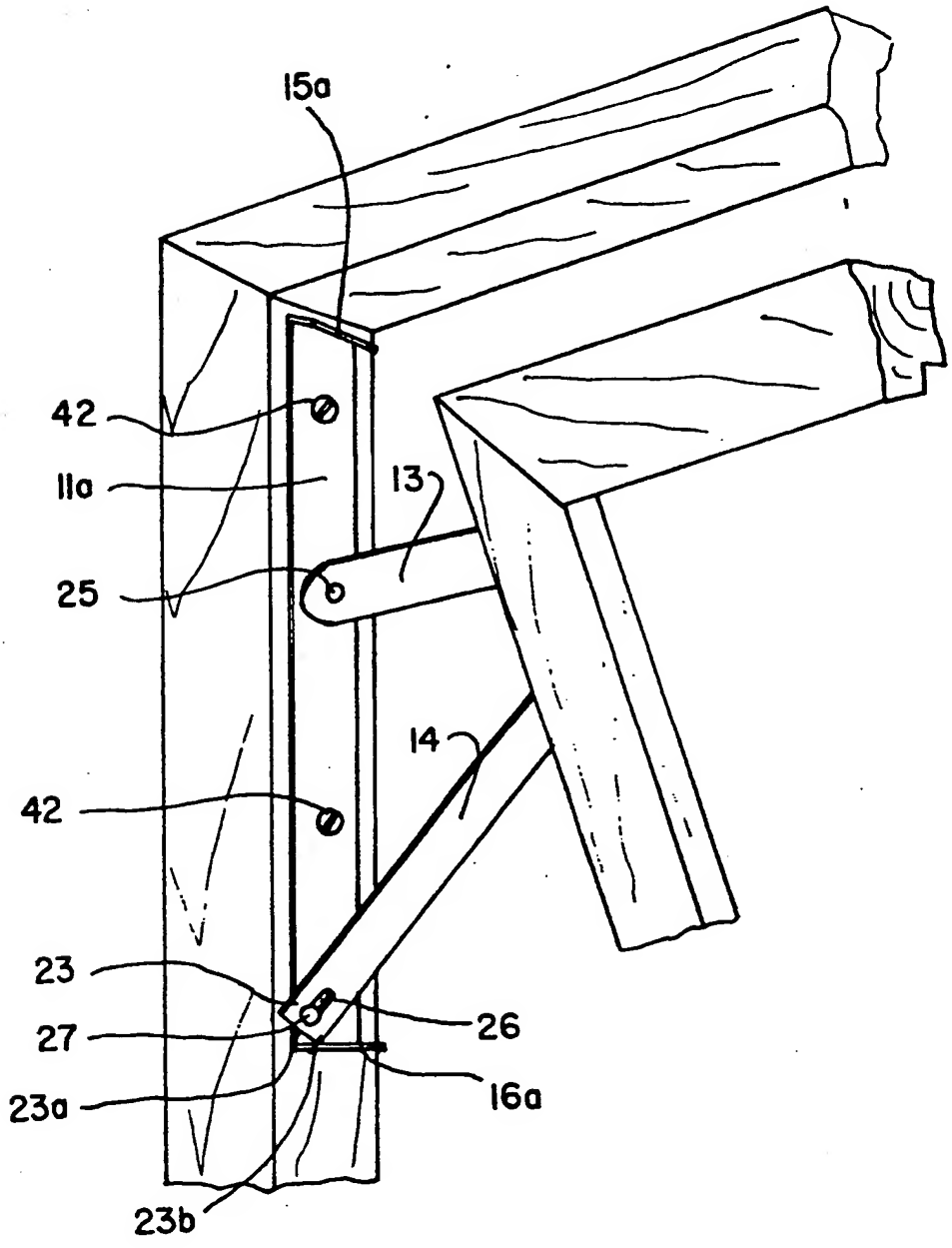


FIG. 9

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# IMPROVEMENTS IN OR RELATING TO WINDOWS

This invention relates to improvements in or relating to windows or the like.

The invention, therefore, provides a device which comprises a first member for attaching to the frame of a window; a second member for attaching to an associated sash; a first element pivotally mounted at one end thereof to the first member, the other end of which element is pivotally mounted to the second member; a second element pivotally mounted at one end thereof to the first member, the other end of which element is pivotally mounted to the second member; the members and elements being in substantially parallel spaced apart relationship and capable of moving from a first condition of use, wherein the elements are substantially sandwiched between the members, to a second condition of use, wherein the elements extend laterally in substantially the same direction from the first member thereby enabling the second member to be positioned laterally relative to the first member.

The invention will be understood in greater detail from the following description of a preferred embodiment thereof given by way of example only and with reference to the accompanying drawings in which;

Figure 1 is a perspective view of a first embodiment of a device according to the invention;

Figures 2-5 are perspective views of the device of Figure 1 shown in use;

Figure 6 is a side elevation of a second embodiment of a device according to the invention; and

Figures 7-9 show the device of Figure 6 shown in use.

Referring now to the drawings and in particular to Figures 1-5 thereof, there is shown a device 10 according to the invention which comprises a first member 11, a second member 12, a first element 13 and a second element 14.

The first member is substantially of rectangular shape having a first stop member 15 and a second stop member 16 mounted on opposite ends 17, 18 respectively thereof.

The second member 12 is substantially L-shaped having a first leg 19 and a second leg 20. The second leg 20 has an upper edge 28. The first member 11 has pivotally attached thereto one end 21 of the first element 13; the other end 22 of the first element 13 is pivotally attached to the second leg 20. The first member 11 also has pivotally attached thereto one end 23 of the second element 14; the other end 24 is pivotally attached to the second leg 20. The end 23 has an apex 23a and an edge 23b.

The ends 21, 22 and 24 are pivotally mounted by means of respective pins 25 engaging in respective cooperating holes 25a. The end 23 has a slot 26 therein adapted for engaging with a pin 27. Accordingly, the end 23 can move pivotally relative to the first member 11 and transversely relative to the pin 27.

In use, the first member 11 is attached to a frame 30 of a window; the first leg 19 of the second member 12 is attached to a sash 31 adapted for holding glazing (not shown). The sash 31 may be in the closed, partially open or fully open position relative to the frame 30.

Referring now to Figures 2-4 of the drawings, it will be observed that the sash 31 is in the closed condition in Figure 2. In that condition, the second leg 20 overlies the first member 11 with the element 13 and part of the element 14 sandwiched therebetween. Essentially, therefore, the members 11, 12 and elements 13, 14 are in parallel spaced apart relationship; the upper edge 28 is in abutting engagement with the stop member 15; the edge 23b is in abutting engagement with the second stop member 16; and the pin 27 is located in the upper part of the slot 26.

If the sash 31 is pushed near or at the base thereof (not shown) in a direction away from the frame 30, the elements 13, 14 enable the second member 12 to move outwardly and away from the frame 30. As the second element 12 moves out of parallel relationship with the first member 11, the slot 26 moves relative to the pin 27 so that the pin 27 engages with the lower part of the slot 26. This movement is aided by the interfacing of the apex 23a with the stop member 16.

The elements 13, 14 extend laterally in the same direction from the member 11 enabling the member 12 to be positioned laterally relative to the member 11.

Moving the sash 31 in the opposite direction results in the opposite sequence of event with the pin 27 eventually engaging in the upper part of the slot 26.

The stop member 15 is present to prevent the sash 31 from being moved as a result of a force being applied to that part of the sash 31 above the second member 12. If the stop member 15 was absent, a force applied to said upper part would result in the upper part only of the sash 31 moving away from the frame 30 and each of the elements 13, 14, instead of moving outwardly, would move inwardly and become locked against further movement when just out of parallel alignment with the first member 11. Essentially, a force applied to said upper part would cause the sash 31 to move slightly upwardly relative to the frame 30. The presence of the stop member 15 prevents further upward movement.

In Figures 2-4 of the drawings, the device 10 is fitted to the frame 30 and the sash 31 so as to be mounted on the respective surfaces thereof. This method of mounting the device is particularly suitable for retrofitting the device 10 to existing <u>in situ</u> frames and sashes.

With particular reference to Figure 5 of the drawings, there is shown the device 10 mounted so that the first member 11 is mounted in a suitably shaped recess in the frame 30<u>a</u>. The second member 12 does not

have first and second legs; rather the second member 12 comprises only the member 12a. The member 12a is also mounted in a suitably shaped recess in the sash 31a. Accordingly, when the sash 31 is in the closed condition, the device 10 is not visible being sandwiched between the frame 30a and the sash 31a.

With reference now to Figures 6-10 of the drawings, there is shown a second embodiment of a device 10a according to the invention. The device 10a is similar to the device 10 of Figure 5 of the drawings being intended for use in a similar manner. However, in place of stop members 15, 16 the member 11a has integral therewith first and second projecting members 15a, 16a which act in a manner similar to the stop members 15, 16. Essentially, the member 11 is U-shaped the legs of which are defined by the members 15a, 16a.

To facilitate pivotal movement of the elements 13, 14 relative to the members 11a, 12a, suitable washers 45 are provided at the pivot locations 25 and 27. Mounting apertures 40 are provided on the member 11a to facilitate screws 42 for enabling the member 11a to be mounted in a suitable recess (not shown) in the frame 30a. Similarly, apertures 41 are provided in the member 12a for enabling the member 12a to be mounted in a suitable recess in the sash 31.

The device 10a functions in a manner similar to the device 10 as previously described.

The device according to the invention provides a relatively simple and inexpensive solution to the problem of providing an easy-to-use means for

opening and closing windows. It will be appreciated that two such devices 10 would be required for each sash.

It will also be appreciated that the window may be secured in the closed condition by a conventional handle and cooperating striker plate arrangement.

The invention is not limited by or to the specific embodiment described which can undergo considerable variation without departing from the scope of the invention.

CLAIMS:

1. A device which comprises a first member for attaching to the frame of a window; a second member adapted for attaching to an associated sash; a first element pivotally mounted at one end thereof to the first member, the other end of which element is pivotally mounted to the second member; a second element pivotally mounted at one end thereof to the first member, the other end of which element is pivotally mounted to the second member; the members and elements being in substantially parallel spaced apart relationship and capable of moving from a first condition of use, wherein the elements are substantially sandwiched between the members, to a second condition of use, wherein the elements extend laterally in substantially the same direction from the first member thereby enabling the second member to be positioned laterally relative to the first member.

2. A device as claimed in Claim 1 wherein the other end of said second element is pivotally attached to the first member by means of a pin and cooperating aperture arrangement for enabling pivotal and slidable interengagement between the pin and the aperture.

3. A device as claimed in Claim 1 or Claim 2 wherein a first stop member is provided on the first element which stop member acts as a biasing means for urging the second element into slidable interengagement relative to the first member.

4. A device as claimed in any of Claims 1-3 wherein a second stop member is provided on the first element

which second stop element acts to prevent the second member from being positioned laterally relative to the first member in a direction opposite to the direction of the second member when the device is in the second condition of use.

5. A device as claimed in any of Claims 1-4 wherein the first and second stop members are located at opposite ends of the first member.

6. A device as claimed in any of Claims 1-5 wherein the stop members are integral with the first member which is substantially U-shaped the legs of which constitute said stop member respectively.

7. A device as claimed in any of Claims 1-6 wherein the first and second members are adapted for mounting on the surface of the frame and sash respectively.

8. A device as claimed in any of Claims 1-6 wherein the first and second members are adapted for mounting in a respective recess of the frame and sash respectively.

9. A device substantially as hereinbefore described with particular reference to and as illustrated in Figures 1-5 of the accompanying drawings.

10. A device substantially as hereinbefore described with reference to and as illustrated in Figures 6-9 of the accompanying drawings.

11. In combination, a device as claimed in any of Claims 1-10 and an associated sash and window frame.

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